	Application No.	Applicant(s)
Notice of Allowability	10/646,036	SHIMOZONO ET AL.
	Examiner	Art Unit
	Greg Bengzon	2144

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address--*

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *04/17/2006*.

2. ☒ The allowed claim(s) is/are *13-16, 18-21 renumbered as Claims 1-8 respectively*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
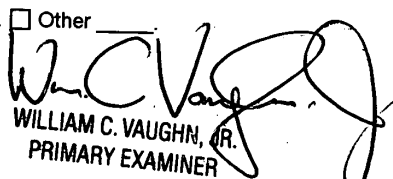
    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

WILLIAM C. VAUGHN, JR.
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Chun-Pok Leung on May 30, 2006.

The application has been amended as follows:

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-12   (canceled)

13.   (currently amended) A network system comprising:
a computer;
a switch that is coupled to said computer via a network;
a first storage device that is coupled to said switch via the network, said first storage device storing first data; and
a second storage device that is coupled to said switch via the network;
wherein said computer issues a first read request for the data stored in said first storage device;

wherein when said switch receives said first read request, if said second storage device has second data that is copy data of said first data, said switch converts said first read request into a second read request for said second data, and transmits said second read request to said second storage device via the network, wherein if said second storage device does not have said second data, said switch transmits said first read request to said first storage device via the network; [[and]]

wherein when receiving the data, said switch transfers the received data to said computer as said first data from said first storage device;

wherein said first storage device includes a plurality of addressable storage areas for storing said first data, while said second storage device includes a plurality of addressable storage areas for storing said second data;

wherein said first read request includes a first destination address where said first data resides;

wherein said switch has information of whether or not said second storage device has said second data; and

wherein if said second storage device has said second data, said switch changes said first destination address to a second destination address, where said second data resides, to be incorporated into said second read request.

14. (previously presented) A network system according to claim 13, wherein said switch has information of whether or not said second storage device has said second data, and said switch determines a destination of the read request in accordance with said information.

15. (previously presented) A network system according to claim 13, wherein said switch transmits the read request to either said first storage device or said second storage device via the network in accordance with information related to presence of said second data.

16. (previously presented) A network system according to claim 13,

wherein said first storage device comprises a network interface coupled to said network and a processor coupled to said network interface, said processor reading said first data in accordance with said first read request and transmitting said first data back to said switch through said network interface and said network.

17. (canceled)

18. (previously presented) A network system according to claim 13, wherein:

said second storage device further includes third data that is not copy data of said first data; and

when said computer issues a third read request for said third data via the network, said switch receives said third read request and transmits said third read request to said second storage device via the network.

19. (currently amended) A network system according to claim 13,

wherein ~~said switch has information of whether or not said second storage device has said second data, and~~ if said second storage device does not have said second data, said switch transfers said first data received from said first storage device to said second storage device in response to said first read request, and said switch updates said information to indicate that said second storage device has as said second data the copy data of said first data currently requested by said computer.

20. (previously presented) A network system according to claim 19,

wherein when said switch has found that an amount of free storage capacity in said second storage device is not enough to store said first data to be transferred, said switch obtains an amount of storage area in said second storage device sufficient for storing said first data to be transferred in such a manner that said switch chooses a storage area occupied by data with the least frequency of use by said computer from among all of said second data in said second storage device.

21. (currently amended) A switch to be coupled to a computer, a first storage device and a second storage device via a network, said first storage device storing first data, said switch comprising:

a port unit to be coupled to said network;

a converter for converting commands and data received by said port unit; and

a switch unit for relaying said command and said data toward a destination of said data in accordance with address information thereof;

wherein when said port unit receives a first read request for said first data from said computer via the network, if said second storage device has second data that is copy data of said first data, said converter converts said first read request into a second read request for said second data, and said switch unit transmits said read request to said second storage device through said port unit, wherein if said second storage device does not have said second data, said switch unit transmits said first read request to said first storage device through said port unit without being converted by said converter; [[and]]

wherein said switch has information of whether or not said second storage device has said second data;

wherein when receiving the data, said switch unit transfers the received data to said computer as said first data from said first storage device;

said first storage device includes a plurality of first storage areas where said first data resides, and a first controller to read said first data from said first storage area and to send a first response which includes said first data and a first initiator identifier for identifying said first storage device, back to said switch through said network;

said second storage device includes a plurality of second storage areas where said second data resides, and a second controller to read said second data from said second storage area and to send a second response which includes said second data and a second initiator identifier for identifying said second storage device, back to said switch through said network;

wherein when said switch receives said first response through said port unit, said switch unit transmits said first response as a reply to said first read request, through said port unit and said network;

wherein when said switch receives said second response through said port, said converter converts said second response into a third response which includes said second data and said first initiator identifier instead of said second initiator identifier; and

wherein said switch unit transmits said third response as a reply to said first read request, through said port unit and said network.

22.   (canceled)

Allowable Subject Matter

Claims 13-16, 18-21 are allowed.

The following is the Examiner's statement of reasons for allowance:

The provisions in the Claims reciting a network switch —

wherein when said switch receives said first read request, if said second storage device has second data that is copy data of said first data, said switch converts said first read request into a second read request for said second data, and transmits said second read request to said second storage device via the network, wherein if said second storage device does not have said second data, said switch transmits said first read request to said first storage device via the network;

wherein said switch has information of whether or not said second storage device has said second data;

wherein if said second storage device has said second data, said switch changes said first destination address to a second destination address, where said second data resides, to be incorporated into said second read request.

— wherein aforementioned features are combined into one embodiment, is not fairly taught by the prior art.

The Applicant's claimed embodiments, unlike any of the cited art, disclose that the copy management switch, as indicated in Applicant Specifications, Figures 9 and Figure 15, Page 48 Lines 20 thru Page 49 Line 10, converts a protocol used for the command and the data which have been received.   Furthermore, the copy management switch has information regarding the original and copy of the data, as indicated in Figure 16, Page 54 Lines 20-25 that manages the association of a SAN address and LUN to track original data and a location to which data is copied.

Lubbers does not teach a copy management switch as claimed, but instead disclosed a redundant configuration management system (Lubbers-Column 6 Lines 65).

Brewer does not teach a copy management switch as claimed, but instead disclosed a port redirection look up table (Brewer-Column 11 Lines 45-50) such as to bypass a storage manager device.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
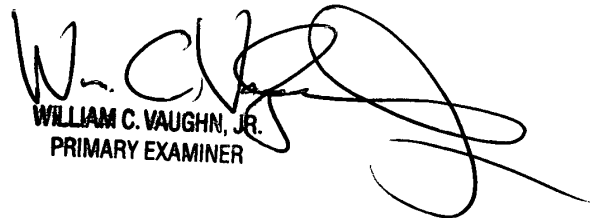
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Bengzon whose telephone number is (571) 272-3944. The examiner can normally be reached on Mon. thru Fri. 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on (571)272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gcb

WILLIAM C. VAUGHN, JR.
PRIMARY EXAMINER